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Oil and Gas Conservation Commission

OF THE STATE OF MONTANA



ANNUAL REVIEW FOR THE YEAR 1969

Relating to

OIL AND GAS

Volume 13

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Annual Review for the Year 1969 Volume 13

INTRODUCTION

Oil production in Montana during 1969 was 43,954,112 barrels. This represents a decrease in total crude produced in the State as compared to 1968 due largely to a decrease of production at the large Bell Creek Field. This reduction at Bell Creek was related to the natural decline in reservoir pressures and to State regulations which restricted gas production. Engineering studies are completed for the central, most productive, part of the Bell Creek Field. This area is scheduled to be unitized and water flooded by mid-1970 which should materially increase Field production by 1971. Production for 1969 was, however, over 20% greater than corresponding figures for 1966 and 1967 indicating a continuing growth of oil productive capacity in Montana.

Secondarily recovered oil is becoming a major factor in the Montana crude picture and added significantly to the nearly one-million barrel increase in production calculated for the Northern Montana portion of the State for 1969. Secondary recovery projects in operation now total 54.

Several new discoveries were made in the northeastern, Williston Basin part of Montana during 1969. This production comes from the Red River formation at depths of 11,200 to 12,500 feet. Initial productive capacity flowing was 315 to 730 barrels daily. Extensions of these new productive areas are anticipated during 1970.

Of potentially great significance was the discovery, at the year's end, of oil in the Silurian Interlake formation in Richland County. The productive zone appears to be thick and initial tests indicate a productive capacity in excess of 1,000 barrels daily.

Two small "muddy sand" fields, Leary and Wright Creek, became productive during 1969. Both fields are in Powder River County, north and west of Bell Creek Field.

Possibly of greatest future importance to Montana was the "coming of age" for the natural gas industry in the State. Due to a price increase, many companies, some new to the State, were exploring primarily for gas. The Tiger Ridge Gas Field in central-northern Montana was expanded to include 215 square miles with the north and west edge of the Field still to be delineated. Dry holes in some parts of the Field are intermixed with productive wells possibly indicating multiple pools. Many large lease blocks were assembled along the mountain fronts of the State and drilling on these prospects for gas is expected during 1970.

Gas production for 1969 was 40,419,948 MCF, an increase of over 30% as compared with 1968. Projected plans by some companies call for the delivery during 1970 of gas from the Tiger Ridge Field which could more than double the natural gas production in Montana.

There were 806 wells drilled in Montana for oil and gas during 1969 resulting in 186 oil wells and 49 gas wells. Of these productive wells, 15 were new oil discoveries and 5 were new gas discoveries. Total footage drilled equalled 3,682,758 feet with an average well depth of 4,569 feet.

The Montana Oil and Gas Conservation Commission during 1969 placed on microfilm most of the well data in Commission files, except production history. On film and available for public use are 7,824 locations with electric, radiation, and sonic logs and well history information from 18,655 locations. The film is contained in 260 cartridges which are indexed by color and township and range for easy well identification and selection.

Copies of the film are available for study in the Commission offices at Billings and Shelby. Equipment in each office permits viewing of the film at scales normal to oil industry use.

Prints may be made from the film with only a six-second delay. A nominal charge is made for prints but use of the film and viewing equipment is free to all interested persons.

Individuals who have used this microfilm system state that it makes immediately available to the viewer a volume of information that would otherwise require unlimited time to assemble and organize.

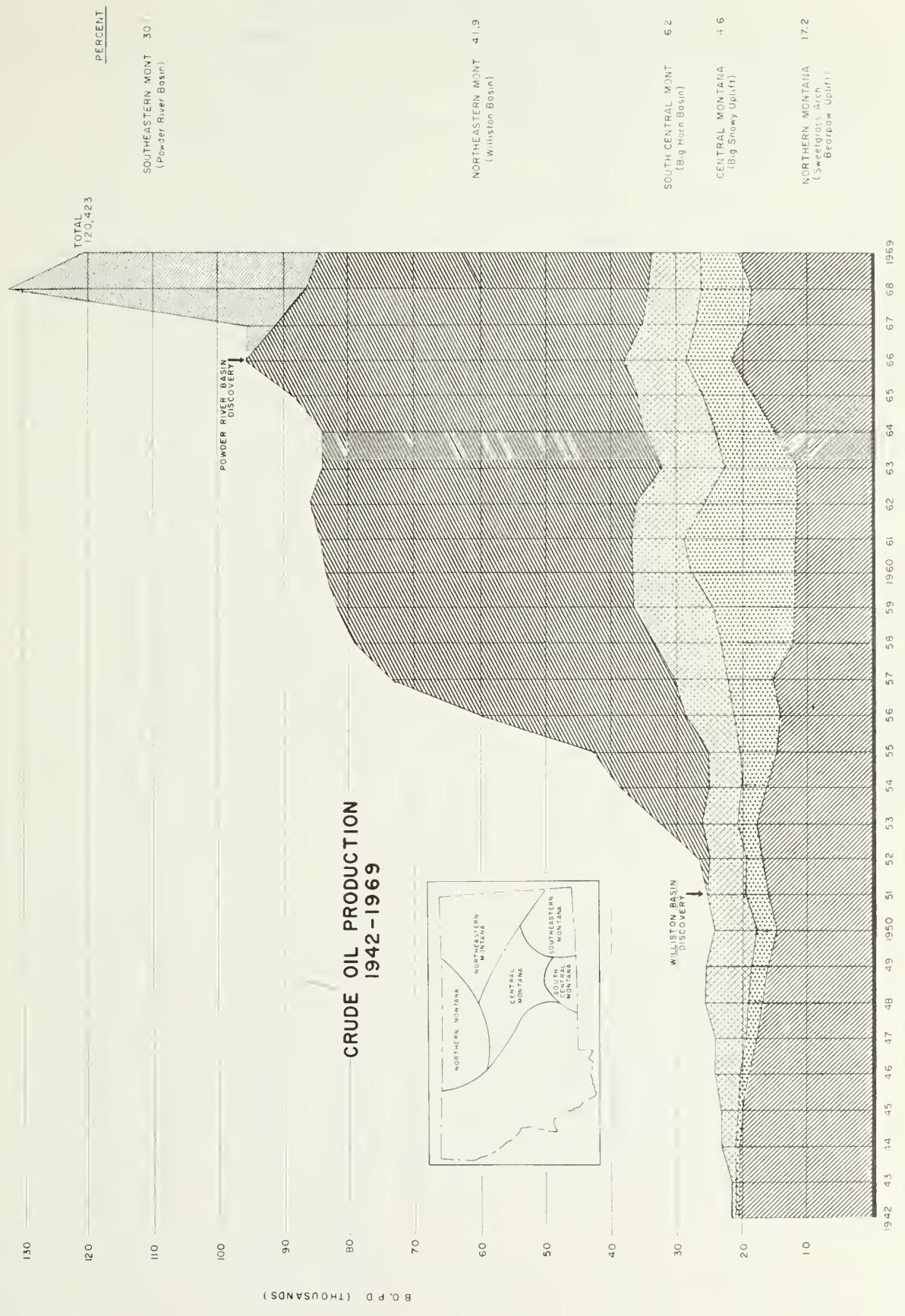
The Commission believes this microfilm data will be of significant assistance to anyone exploring for oil or gas in Montana and welcomes industry use of the film and equipment.

FIVE YEAR SUMMARY

	1965	1966	1967	1968	1969
Production, Northern Montana—Bbls.	6,826,261	7,991,302	6,758,280	6,883,493	7,557,966
South Central—Bbls.	3,597,647	3,392,890	3,181,132	2,885,272	2,739,346
Central—Bbls.	2,849,923	2,710,194	2,872,604	2,728,357	2,011,445
Williston Basin—Bbls.	19,504,287	21,285,732	20,475,733	19,390,652	18,396,618
Powder River Basin—Bbls.	---	---	1,671,277	16,572,472	13,248,737
TOTAL	32,778,118	35,380,118	34,959,026	48,460,246	43,954,112
No. of Producing Wells, Northern Montana	2,649	2,308	2,097	1,898	1,827
South Central	101	106	96	99	108
Central	306	301	286	282	244
Williston Basin	754	792	802	784	759
Powder River Basin	---	---	109	328	397
TOTAL	3,810	3,507	3,390	3,391	3,335
Average Daily Production/Well—BOPD,					
Northern Montana	7.1	9.5	8.8	9.9	11.3
South Central	97.6	87.7	90.7	79.6	69.5
Central	25.5	24.7	27.5	26.4	22.6
Williston Basin	70.9	73.6	69.9	67.6	66.4
Powder River Basin	---	---	70.6	138.0	91.4
STATE AVERAGE	23.6	27.6	28.2	39.0	36.1
Development Wells Drilled, Oil Wells	177	179	162	300	171
Gas Wells	9	9	14	14	44
Dry Holes	107	96	104	89	105
TOTAL	293	284	280	403	320
Exploratory Wells Drilled, Oil Wells	14	10	7	15	15
Gas Wells	1	3	5	13	5
Dry Holes	199	185	191	509	466
TOTAL	214	198	203	537	486
TOTAL WELLS DRILLED	507	482	483	940	806
TOTAL FOOTAGE DRILLED	2,328,865	2,211,369	2,158,964	4,547,691	3,682,758
AVERAGE DEPTH OF ALL WELLS	4,593	4,588	4,470	4,839	4,569

SUMMARY OF DRILLING BY COUNTIES—1969
STATE OF MONTANA

County	Wildcats			Development			Wells Total	Footage Drilled	Average Depth
	Dry	Oil	Gas	Dry	Oil	Gas			
Big Horn	20	0	0	0	0	0	20	141,171	7,059
Blaine	39	0	2	5	0	9	55	138,187	2,512
Carbon	0	1	0	3	2	0	6	48,824	8,137
Carter	46	0	0	0	0	0	46	187,622	4,079
Chouteau	13	0	0	0	0	0	13	23,462	1,805
Custer	27	0	0	0	0	0	27	147,180	5,451
Daniels	5	0	0	0	0	0	5	38,726	7,745
Dawson	10	0	0	0	0	0	10	73,917	7,392
Fallon	6	1	0	1	12	0	20	150,837	7,542
Fergus	10	0	0	0	0	0	10	27,837	2,784
Garfield	7	0	0	0	0	0	7	36,489	5,213
Glacier	3	0	0	3	35	0	41	133,826	3,264
Hill	38	0	3	18	0	21	80	129,458	1,618
Lewis & Clark	1	0	0	0	0	0	1	3,728	3,728
Liberty	8	0	0	7	3	7	25	60,814	2,433
McCone	18	1	0	0	0	0	19	112,073	5,899
Meagher	1	0	0	0	0	0	1	1,841	1,841
Musselshell	10	0	0	4	2	0	16	80,292	5,018
Petroleum	2	0	0	1	3	0	6	11,930	1,988
Phillips	14	0	0	0	0	0	14	50,316	3,594
Pondera	8	0	0	6	30	0	44	142,009	3,227
Powder River	74	2	0	30	58	0	164	849,714	5,181
Prairie	6	0	0	0	0	0	6	34,452	5,742
Richland	12	4	0	4	7	0	27	288,067	10,669
Roosevelt	12	4	0	4	2	0	22	209,443	9,520
Rosebud	19	0	0	5	1	0	25	143,589	5,744
Sheridan	9	1	0	6	8	0	24	202,808	8,450
Stillwater	1	0	0	0	0	0	1	3,300	3,300
Teton	5	0	0	0	0	0	5	12,783	2,557
Toole	23	0	0	8	7	7	45	88,274	1,962
Treasure	1	0	0	0	0	0	1	6,591	6,591
Valley	6	0	0	0	0	0	6	23,302	3,884
Wheatland	1	0	0	0	0	0	1	2,320	2,320
Wibaux	5	1	0	0	1	0	7	48,936	6,991
Yellowstone	6	0	0	0	0	0	6	28,640	4,773
TOTALS	466	15	5	105	171	44	806	3,682,758	4,569



GAS PRODUCTION DATA—1969

Field	County	Producing Formations	1969 Production M.C.F.
Bell Creek	Powder River	Muddy	9,177,024
Big Coulee	Golden Valley & Stillwater	Lakota & Morrison	1,038,834
Blackjack	Liberty	Sunburst & Swift	542,161
Box Elder	Blaine	Eagle	20,338
Bowdoin	Phillips & Valley	Colorado	1,947,951
Bowes	Blaine	Eagle	427,417
Cabin Creek	Fallon	Interlake & Red River	1,278,159
Cedar Creek	Fallon & Wibaux	Judith River & Eagle	5,344,311
Clark's Fork South	Carbon	Greybull	84,182
Cut Bank & Reagan	Glacier & Toole	Cut Bank & Madison	7,308,722
Dry Creek	Carbon	Eagle & Frontier	450,222
Elk Basin	Carbon	Tensleep	945,218
Flat Coulee	Liberty	Blackleaf & Swift	140,761
Gold Butte	Toole	Swift	51,043
Grandview	Liberty	Blackleaf & Kootenai	678,776
Hardin	Big Horn	Frontier	30,514
Keith Block	Liberty	Blackleaf & Sawtooth	2,340,071
Kevin Sunburst	Toole	Kootenai	665,569
Lake Basin	Stillwater	Frontier	1,220,808
Middle Butte	Toole	Blackleaf	36,308
Mt. Lilly	Liberty	Madison	401,642
Pine	Dawson, Prairie, Fallon & Wibaux	Interlake & Red River	730,956
Plevna	Fallon	Judith River	46,468
Squaw Coulee	Hill	Eagle	523,768
Tiger Ridge	Blaine, Hill	Judith River, Eagle	225,948
Utopia	Liberty	Blackleaf, Kootenai & Ellis	764,659
Whitlash	Liberty	Blackleaf, Kootenai	1,059,814
Miscellaneous			2,938,304
TOTAL ALL FIELDS			40,419,948

REFINING

	Year 1969 Total Bbls.
Big West Oil Company	1,101,106
Continental Oil Company	13,561,918
Diamond Asphalt Company	174,469
Farmers Union Central Exchange, Inc.	8,261,495
Humble Oil & Refining Company	13,564,287
Jet Fuel Refinery	29,652
Phillips Petroleum Company	1,609,091
Tesoro Petroleum Company	861,309
Union Oil Company	1,274,207
TOTAL Barrels Oil Refined in Montana, 1969	40,437,537

SUMMARY OF SECONDARY RECOVERY PROJECTS
(Date Effective To January 1, 1970)

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000' Bbls. or MMCF	Dec. 1969 Avg. Daily Injection Rate	No. of Injection Wells	Source of Injection Media
Ash Creek, Shannon	McDermott	Waterflood	Peripheral	10-15-64	612	280	4	Parkman, Data for Montana portion
Big Wall, Tyler	Texaco, Inc.	Waterflood	Modified Peripheral	8-20-66	6,000	5,240	2	Produced water from Amsden & Tyler
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Dispersed	5-23-61	3,154	483	3	Madison
Cabin Creek, Siluro-Ordovician	Shell Oil	Waterflood	Modified Peripheral	6-12-59	44,890	41,564	30	Produced Water & Fox Hills
Cat Creek, 1st & 2nd CC (Unit 1)	Farmers Union	Waterflood	Peripheral	10-10-62	6,535	--	4	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Farmers Union	Waterflood	Peripheral	12-1-59	15,771	--	4	Third Cat Creek
Coral Creek (included as part of Lookout Butte Field)								
Cut Bank, NE Unit, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	6-2-63	9,313	3,441	31	Madison
Cut Bank, NW Unit, Cut Bank	Humble Oil	Waterflood	5-Spot	1-30-62	10,703	2,131	19	Madison
Cut Bank, So. Central, Cut Bank	Union Oil	Waterflood	5-Spot	5-63	15,300	7,070	49	Madison
Cut Bank, SE Unit, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	4-62	24,000	10,615	51	Madison
Cut Bank, SW Unit, Cut Bank	Phillips Petr.	Waterflood	5-Spot	9-62	20,900	23,516	140	Madison
Cut Bank, Tribal, Lander	Humble Oil	Waterflood	Dispersed	6-51	4,759	0	0	Eagle
Cut Bank, H. C. Lander, Lander	Humble Oil	Waterflood	Dispersed	4-65	962	514	2	Eagle
Cut Bank, Lander Sand, Lander	Texaco, Inc.	Waterflood	Dispersed	7-64	2,943	1,637	6	Eagle
Cut Bank, McGuinness-Moulton	Union Oil	Waterflood	Dispersed	12-62	1,882	472	1	Madison
Cut Bank, Moulton	Union Oil	Waterflood	Dispersed	8-68	2,123	4,310	6	Madison
Cut Bank, Two Medicine, Cut Bank	Miami Oil	Waterflood	5-Spot	12-67	7,835	14,692	84	Madison
Darling, State Unit, Moulton	B. G. & O. Co.	Waterflood	Dispersed	2-67	716	1,149	1	Produced Water
Darling, NE Unit, Moulton	Ralph Fair	Waterflood	Dispersed	2-68	872	1,184	3	Madison
Darling, South, Swenson, Moulton	B. G. & O. Co.	Waterflood	Dispersed	2-67	2,322	3,426	6	Madison
Dwyer, Ratcliffe	Phillips Petr.	Waterflood	Pilot	10-68	145	319	2	Produced Water
Elk Basin, Frontier	Pan American	Gas Injection	Crestal	1926	All Injection Wells in Wyoming			Purchased Gas
Elk Basin, Embar-Tensleep	Pan American	Gas Injection	Crestal	1949	All Injection Wells in Wyoming			Inert Gas
Elk Basin, Madison	Pan American	Waterflood	Peripheral	1962	25,763	11,596	6	Madison
Elk Basin, NW Unit, Frontier	Atlantic Richfield	Waterflood	Peripheral	10-57	4,667	780	3	Madison
Elk Basin, NW Unit, Tensleep	Atlantic Richfield	Waterflood	Modified Peripheral	5-67	557	800	1	Produced Water & Madison
Gas City, Red River	Shell Oil	Waterflood	Semi-Peripheral	10-31-69	161	2,090	5	Mission Canyon
Keg Coulee West, Tyler	Pan American	Waterflood	Modified Peripheral	8-31-66	2,128	1,963	2	Madison
Keg Coulee East, Tyler	Continental Oil	Waterflood	Semi-Peripheral	12-24-69	24	3,445	3	Third Cat Creek
Keg Coulee South East, Tyler	B. G. & O. Co.	Waterflood	Semi-Peripheral		No Injection in 1969			Madison
Kelley, Tyler "B"	McAlester	Waterflood	Random	7-69	58	287	1	Third Cat Creek
Kevin-Sunburst, Madison	Cardinal Petroleum	Waterflood	Dispersed	6-65	657	376	7	Madison
Kevin-Sunburst, Madison	B. G. & O. Co.	Waterflood	Dispersed	8-64	1,253	1,573	7	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	Waterflood	Peripheral	8-64	3,824	2,349	10	Madison
Kevin-Sunburst, Madison	Lon Crumley	Waterflood	Dispersed	9-63	529	269	3	Madison
Little Beaver, Red River	Shell Oil	Waterflood	Semi-Peripheral	8-7-66	7,520	4,599	7	Minnelusa
Little Beaver East, Red River	Shell Oil	Waterflood	Semi-Peripheral	4-65	4,254	3,271	3	Minnelusa
Lookout Butte, Siluro-Ord.	Shell Oil	Waterflood	Modified Peripheral	4-67	6,186	7,684	11	Minnelusa
Mosby Dome, 2nd Cat Creek	Farmers Union	Waterflood	Dispersed	5-68	59	183	2	Third Cat Creek
Mosby Dome, Swift	Farmers Union	Waterflood	Dispersed	7-67	783	1,073	4	Third Cat Creek
Moulton, Moulton	Union Oil	Waterflood	Dispersed	8-68	2,123	4,310	6	Madison
Pennel, Red River	Shell Oil	Waterflood	Dispersed	6-28-69	2,000	12,355	38	Oakota & Produced Water
Pine, North, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-68	2,800	3,851	10	Lodgepole
Pine, South, Red River	Shell Oil	Waterflood	Semi-Peripheral	3-59	51,700	24,102	50	Produced & Fox Hills
Pondera, Madison	Phillips Petr.	Waterflood	Dispersed	8-61	911	452	1	Madison
Ragged Point, Tyler "A"	B. G. & O. Co.	Waterflood	Modified Peripheral	2-3-66	2,600	1,198	6	Third Cat Creek
Red Creek, Cut Bank	Humble Oil	Waterflood	5-Spot	6-65	4,065	1,573	8	Madison
Reagan, Madison	Union Oil	Gas Injection	Crestal	8-61	2,843	1,220	2	Purchased Gas
Richey SW, Oawson Bay-Interlake	Atlantic Richfield	Waterflood	Dispersed	12-65	1,674	1,330	3	Fox Hills
Stensvad, Tyler "B"	Pan American	Waterflood	Peripheral	2-63	12,800	6,494	6	Madison
Sumatra, West, Tyler "B"	Continental Oil	Waterflood	Peripheral	10-68	1,701	2,800	6	Madison
Sumatra, Central, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	9-16-69	718	12,633	15	Madison
Sumatra, NE, Tyler "B"	Texaco, Inc.	Waterflood	Peripheral	9-16-69	38	409	1	Madison
Sumatra, SE Unit, Tyler	B. G. & O. Co.	Waterflood	Peripheral	12-1-69	61	1,960	4	Madison
TOTAL 54					W 1,194,937 G 2,843	W 237,848 G 1,220	679	

OIL AND GAS DISCOVERIES IN 1969

County	Operator—Well Name and Location	Field	Total Depth	Initial Oil B/D	Potential Gas MCF	Producing Formation	Completed
Blaine	Basin Petr., Cow Creek Federal 1, NE SW 3-25N-21E	Unnamed	4,011		500	Eagle	4-21-69
Blaine	El Santo Petr., Bearpaw Federal 1-18, NW NW 18-23N-19E	Unnamed	1,502		960	Eagle	6-17-69
Carbon	Nyvatex, Federal 2, SW NE 26-9S-22E	Clark's Fork South	9,480	458 F	2,520	Greybull	10- 2-69
Fallon	Buttes Gas & Oil, NPRR 1-15, SE NW 15-9N-59E	Unnamed	9,650	130 P		Red River	9-18-69
Hill	C. J. Iverson, Kafka 1, SE NW 13-32N-14E	Tiger Ridge (extension)	1,300		1,500	Eagle	12-16-68
Hill	High Crest, Boyce 21-3, NE SW 21-30N-15E	Tiger Ridge (extension)	1,684		unknown	Eagle	9- 3-69
Hill	High Crest, State 36-13, NW SE 36-32N-14E	Tiger Ridge (extension)	1,233		unknown	Eagle	9- 3-69
McCone	Resources Capital, NP 1-20, SW SW 20-22N-47E	Cow Creek	6,987	235 P		Charles	5-16-69
Powder River	Petroleum Inc., Fed.-Sawtooth B, NE SW 35-8S-51E	Leary	5,766	297 F		Muddy	7-22-69
Powder River	Davis Oil Co., Anderson-Federal, NW NW 9-8S-53E	Wright Creek	4,758	114 P		Muddy	8-15-69
Roosevelt	Consolidated Oil, Moore et al, SW NE 32-28N-56E	Culbertson	11,850	314 F		Red River	6- 2-69
Roosevelt	Pan American, Robinson 1, NW SE 28-28N-58E	Bainville	12,512	587 F		Red River	3-21-69
Roosevelt	E. A. Polumbus, No. 5, SW NE 10-28N-51E	East Poplar	7,307	52 F		Nisku (New Pay)	2- 6-69
Roosevelt	E. A. Polumbus, Huber 1, SE NE 10-28N-51E	East Poplar	4,864 PBD	245 P		Heath (New Pay)	5- 5-69
Richland	Consolidated Oil, Henderson 13-24, NE SW 13-24N-58E	Hay Creek	9,625	327 P		Mission Canyon	3- 7-69
Richland	Consolidated Oil, Ullman 1, SW NW 13-34N-58E	Hay Creek	12,810	730 F		Red River	1-30-69
Richland	King Resources, Dayton 1, NE SE 23-25N-56E	Hardscrabble Creek					
Richland	King Resources, Putnam 1, NW SE 20-23N-57E	Unnamed	12,640	80 P		Mission Canyon	10-21-69
			12,530	600 F		Red River & Silurian	11-11-69
Sheridan	Chevron Oil Co., Melby 1, NW SW 1-33N-58E	Brush Lake	11,758	679 F		Red River	11- 5-69
Wibaux	King Resources, Knight 42-30, SE NE 30-14N-60E	Wibaux	11,200	65 P		Red River	1-28-69

OIL AND GAS FIELDS

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
ANTELOPE Swift (U. Jur.)	5	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
ARCH APEX Bow Island (L. Cret.) Gas Swift (Jurassic) Gas (Shut-in)	16 1	Strat. Strat.	Volumetric Volumetric	330' from legal subdivision; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.) (Sometimes called Colorado Blackleaf pool.) (Swift) State-wide.	None
ASH CREEK Shannon (U. Cret.)	6	Structural	Partial Water Drive and Depletion	Spacing waived within unitized portion of field except no well may be drilled closer than 660' from unit boundary. (Order 4-65.)	Waterflood started October, 1964. (Orders 22-64, 15-66.)
BAINVILLE Red River (Ord.)	2	Structural-Strat.	Depletion-Water Drive	State-wide.	None
BANNATYNE Swift (U. Jur.)	2	Structural	Comb. Water Drive and Volumetric	Center of 10-acre tracts, 50' topographic tolerance. Commingling permitted. (Order 20-58.)	Pilot waterflood of Swift suspended in 1963.
Sun River (U. Miss.) (Shut-in)	2	Structural			
BASCOM Amsden (Penn.) Tyler (L. Penn.)	(behind pipe) 1	Strat. Struct.-Strat.	Water Drive Depletion	State-wide. (Order 10-63.)	None
BEARS DEN Sunburst (L. Cret.) Gas Swift (U. Jur.) Oil Sawtooth (Jur.) Gas (Shut-in)	2 5 1	Structural	Depletion and Gas Cap Drive	State-wide.	None
BELL CREEK Muddy (L. Cret.) (Oil & Gas)	385	Strat.	Depletion	40-acre spacing units with location 660' from unit boundary with 150' tolerance for topographic reasons only, 300 barrel per well per day MER. Semi-annual bottom-hole pressure surveys. Quarterly gas-oil ratio tests. (Orders 37-67, 39-67, 50-67, 1-69.) Gas extraction plant.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BENRUD Nisku (Dev.)	1	Structural	Water Drive	160-acre spacing units with permitted location within a 1320' square in center of quarter section. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62.)
BENRUD, EAST Nisku (Dev.)	2	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62, 32-66.)
BENRUD, NORTHEAST Nisku (Dev.)	1	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 32-66.)
BERTHELOTE Sunburst (L. Cret.)	1	Strat.	Depletion	40-acre spacing units with well no closer than 330' from lease or property line and not closer than 660' between wells. (Order 18-66.)	None
BIG COULEE 3rd Cat Creek (L. Cret.) Gas Morrison (U. Jur.) Gas	3 2	Structural Structural	Water Drive Water Drive	State-wide.	None
BIG WALL Amsden (Penn.) Tyler (Penn.)	2 9	Structural Struct.-Strat.	Water Drive Depletion	Spaced by old state-wide spacing; 330' from lease or property line, 990' between wells in same reservoir. (Order 12-54.)	Previous disposal into Tyler "A" stopped in 1961. Water-flood of Tyler "B" sand started Aug. 1966. (Order 22-66.)
BLACKFOOT Cut Bank (L. Cret.) Sun River (Miss.)	 7	Strat. Structural	Depletion Water Drive	One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank and Madison with administrative approval. (Order 3-57.)	None
BLACK JACK Sunburst (L. Cret.) Gas Swift (U. Jur.) (Gas & Oil)	9 1	Strat.	Depletion	One gas well per 160-acres, no closer than 660' from boundary of each unit. (Order 3-69.) Oil: State-wide spacing.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BORDER					
Cut Bank (L. Cret.) (Oil & Gas)	3	Strat.	Depletion	Oil: 220' from boundary of legal subdivision and 430' between wells in same formation; 75' topographic tolerance.	None
Moulton (L. Cret.) (Oil & Gas)	13	Strat.	Depletion	Gas: 330' from boundary of legal subdivision. 2400' between wells in same formation on same lease. 75' topographic tolerance. (Order 7-54.)	
BOWDOIN					
Bowdoin & Phillips sands in Colorado shale (U. Cret.) Gas	346	Structural	Volumetric	One well per quarter section not less than 1000' from lease boundary or less than 2000' from any gas well in same horizon. (Order 29-55.)	None
BOWES					
Eagle (U. Cret.) Gas	20	Structural	Volumetric	660' from boundary of legal subdivision, 1320' from other wells in same formation. 75' topographic tolerance. (Order 23-54.)	None
Sawtooth (M. Jur.)	52	Structural	Partial Water Drive	330' from lease or property line, 990' between wells in same formation. (Order 13-54.)	Pilot waterflood initiated in 1961 and expanded to field-wide waterflood in 1965. (Order 5-61.) Water from Madison.
BRADLEY					
Sun River (Miss.)	1	Structural	Water Drive	State-wide.	None
BRADY					
Sunburst (L. Cret.)	2	Strat.	Depletion, Partial Water Drive	10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62, 55-62.)	None
BRORSON					
Mission Canyon (Miss.) (Oil & Gas)	1	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from boundary (Mission Canyon and Red River). (Order 5-69.)	None
Red River (Ord.) (Oil & Gas)	9				
BRORSON, SOUTH					
Red River (Ord.) Oil & Gas	3	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary. (Order 26-68.) Gas sold to Omega Gas Company.	None
BRUSH LAKE					
Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CABIN CREEK					
Mission Canyon (Miss.) (Oil & Gas)	21	Structural	Water Drive, Depletion	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes in-operative. (Order 36-62.) Many wells produce from both Interlake and Red River by dual completion. Gas to gas plant.	Waterflood of Siluro-Ordovician reservoir has been expanded to a full scale peripheral flood. (Orders 60-62, 30-63.)
Interlake (Sil.) (Oil & Gas)	7	Structural	Water Drive, Depletion		
Red River (Ord.) (Oil & Gas)	77	Structural	Water Drive, Depletion		
CAT CREEK					
Kootenai (L. Cret.) (3 sands)	41	Structural- Strat.	Water Drive	220' from lease or property line, 440' from every other well in same formation. (Order 17-55.) Five separate producing areas, East, Antelope, Mosby, West and Londheim Dames.	Three Kootenai waterfloods and one Ellis waterflood in progress. (Orders 17-56, 18-59, 13-62, 8-68.) Water from Third Cat Creek sand. Pilot flood East Dome, Ellis sand.
Morrison (U. Jur.)	2	Structural- Strat.	Water Drive		
Ellis (U. Jur.)	21	Structural	Depletion- Water Drive		
Amsden (Penn.)	2	Structural- Strat.	Water Drive	State-wide.	
CEDAR CREEK					
Judith River (U. Cret.) Gas	176	Structural	Valumetric	1200' from legal subdivision line, 2400' from every other well in same formation. (Order 33-54.)	None
Eagle (U. Cret.) Gas	60	Structural	Volumetric	320-acre spacing units. Wells in center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each section with 200' topographic tolerance. (Order 1-61.)	None
CLARK'S FORK					
Frontier (U. Cret.)	1	Structural- Strat.	Depletion	330' from quarter-quarter section line, 1320' between wells with 75' topographic tolerance. (Order 17-54.)	None
CLARK'S FORK SOUTH					
Greybull (L. Cret.) (Oil & Gas)	1	Structural- Strat.	Depletion- Water Drive	160-acre spacing, location no closer than 330' from quarter section line or 1320' from any other well.	None
CONRAD, SOUTH					
Dakota (L. Cret.) (Shut-in)	1	Strat.	Depletion	10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62, 31-63.)	None
COW CREEK					
Charles (Miss.)	1	Structural	Water Drive	80-acre spacing units, direction at option of operator but wells to be in SW $\frac{1}{4}$ and NE $\frac{1}{4}$ of each quarter section. (Order 11-69.)	None
CULBERTSON					
Red River (Ord.)	1	Structural- Strat.	Depletion- Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CUPTON Red River (Ord.)	2	Structural- Strat.	Water Drive	80-acre spacing units consisting of E $\frac{1}{2}$ and W $\frac{1}{2}$ of quarter section; well location in SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of quarter section with 75' topographic tolerance. (Order 31-55.)	None
CUT BANK Kootenai (L. Cret.) Oil & Gas (Gas Only)	714 133	Strat.	Depletion	(Kootenai formation includes Moulton, Sunburst, and Cut Band sands.) Oil: 330' from legal subdivision line. 650' between wells in same formation. 5-spot on 40-acre tract permitted. 75' topographic tolerance. (Order 10-54.)	There are 15 waterfloods in progress. Water from Eagle and Madison, or produced.
Madison (Miss.) Oil & Gas (Gas Only)	33 2 (?)		Water Drive	Gas: 330' from legal subdivision, 2400' between wells in some formation, 75' topographic tolerance. (Order 10-54.)	
DARLING (Included as part of Cut Bank Field)					
DEAN DOME Greybull (L. Cret.) Gas Oil	1 1	Structural	Water Drive	State-wide. Oil ring below gas cap. One each shut-in gas and oil well.	None
DEER CREEK Interlake (Sil.)	1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Well location in NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section with 75' topographic tolerance. (Orders 23-55 & 14-59.) Commingling of production permitted upon approval of Comm. Petr. Engr. (Order 18-63.)	Excess produced water is disposed into Dakota and Lakota formations. (Orders 6-56 & 3-58.) Two Silurian wells shut-in.
Red River (Ord.)	1	Structural	Water Drive		
DELPHIA Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN Heath (U. Miss.)	(Shut-in) 5	Structural	Depletion	State-wide.	None
DEVON Blackleaf, (L. Cret.) Gas	(Shut-in) 12	Strat.	Volumetric Depletion	State-wide. State-wide.	None None
Kootenai (L. Cret.) Oil	Depleted	Strat.			

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
DRY CREEK					
Eagle (U. Cret.) Gas	1	Structural- Strat.	Volumetric	State-wide.	None
Frontier (U. Cret.) Gas	6	Structural	Volumetric		Six additional gas storage wells, west end of structure.
Greybull (L. Cret.) Gas, some oil	1	Structural- Strat.	Volumetric- Depletion	Depleted. Plugged and Abandoned.	
DWYER					
Ratcliffe (Miss.)	12	Structural- Strat.	Water Drive- Volumetric	160-acre spacing units; well location in center of SE 1/4 of spacing unit with 175' topographic tolerance. (Orders 25-60, 29-61.)	Produced water disposed into Dakota formation. (Order 26- 63.) Waterflood (Order 20- 68.)
EAST KEITH & KEITH					
Bow Island (L. Cret.) Gas	11	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-62). Pooling (Order 19-66).	None
Sawtooth-Madison (Jur.-Miss.) Gas	2				
ELK BASIN (Mont. Portion)					
Frontier (U. Cret.)	18	Structural	Gravity Drainage	Rule No 203 (Spacing) is waived within Unit Area. (Order 10-61.)	Frontier: Crestal gas injection.
Dakota (L. Cret.)	3	Structural	Gravity Drainage		Embar - Tensleep; Pressure
Embar-Tensleep (Perm., Penn.)	20	Structural	Gravity Drainage		maintenance by crestal gas in
Madison (Miss)	20	Structural	Water Drive		injection. Waterflood approved in 1966. (Order 5-66.)
					Madison: Water injection.
ELK BASIN, NORTHWEST					
Frontier (U. Cret.)	6	Structural	Depletion	Spacing waived within unitized portion except that bot- tom of hole be no closer than 330' from unit boundary	Frontier: Waterflood in prog- ress.
Embar-Tensleep (Perm., Penn.)	6	Structural	Gravity Drainage	and there be at least 1320' surface distance between wells in same formation; 75' topographic tolerance. (Or- ders 43-63, 28-64.)	Embar-Tensleep: Waterflood and gas injection in progress. (Order 3-67.) Madison, pro- duced water.
Madison (Miss.)	2	Structural	Water Drive		
ETHRIDGE					
Swift (U. Jur.) Gas (Shut-in)	6	Strat.	Water Drive	State-wide, except two wells by (Order 28-65).	None
FAIRVIEW					
Winnipegosis (Dev.) (Oil & Gas)	1	Structural	Water Drive	160-acre spacing unit. Well location anywhere in spac- ing unit but no closer than 660' from unit boundary. (Order 48-65, 1-67, 43-67, 44-67.) Gas to Fairview plant.	None
Red River (Ord.) (Oil & Gas)	10	Structural	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
FERTILE PRAIRIE Red River (Ord.)	2	Structural- Strat.	Water Drive	80-acre spacing units consisting of north-south rectangular units. Well location in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None
FLAT COULEE Bow Island (L. Cret.) Gas	1	Structural and Strat.	Depletion	330' from boundary of legal subdivision and 1320' from other wells in some reservoir. (Order 16-55.)	None
Dakota (L. Cret.) Gas	1	Strat.	Depletion	State-wide, exception Order 11-66.	
Swift (Jur.) Gas (Shut-in)		Strat.	Depletion	State-wide gas spacing.	
Swift (Jur.) Oil	34	Strat.	Depletion	40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.)	
Sawtooth (Jur.) Gas	1	Strat.	Depletion	State-wide.	
FLAT LAKE Ratcliffe (Miss.)	60	Structural- Strat.	Partial Water Drive	160-acre spacing units; well location in center of NE $\frac{1}{4}$ of quarter section with 200' topographic tolerance. Wells no closer than 961' to No. Dakota state line and no closer than 1600' to Canadian line. (Orders 10-65 amended, 43-65, 23-66, 33-66.)	Excess salt water disposed into Muddy, Dakota, or Lakota formations. (Orders 39-64, 39-66.)
FLAT LAKE, SOUTH Ratcliffe (Miss.)	4	Structural- Strat.	Partial Water Drive	Same as Flat Lake spacing. (Order 2-67.)	Excess salt water disposed into Muddy, Dakota, or Lakota. (Order 19-67.)
FRANNIE (Mont. Portion) Tensleep (Penn.)	2	Structural	Comb. Water Drive and Gravity Drainage	10-acre spacing units; well location in center of each unit with 100' topographic tolerance. (Order 35-63.)	None
FRED & GEORGE CREEK Sunburst (L. Cret.) (Oil & Gas)	29	Strat.	Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.)	None
Swift (U. Jur.) (Oil & Gas)	23	Strat.	Depletion	State-wide.	
GAGE Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
GAGE, SOUTHWEST Amsden (Penn.) (Shut-in)		Unknown	Water Drive	Temporary 160-acre spacing expired. State-wide spacing now applies. (Order 50-65.)	None
GAS CITY Red River (Ord.)	17	Structural	Depletion- Water Drive	80-acre spacing units consisting of E1/2 and W1/2 of quarter sections; well location in NW1/4 and SE1/4 of quarter section; 150' topographic tolerance. Spacing waived and state-wide Rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are waived in unitized portion of field. (Order 29-62.)	Excess produced water disposed into Judith River formation. (Orders 32-61, 20-64.) Wafterflood using produced water and Madison water (Order 16-69.)
GIRARD Red River (Ord.)	2	Structural- Strat.	Depletion- Water Drive	State-wide.	None
GLENDIVE Red River (Ord.) Oil & Gas	14	Structural- Strat.	Depletion- Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; wells located in center of NE1/4 and SW1/4 of each quarter section with 75' topographic tolerance. (Orders 27-55, 19-62, 58-62, 20-66.)	Excess produced water disposed into Swift and Dakota formations. (Orders 16-56, 16-63.)
GOLD BUTTE Swift (U. Jur.) Gas	1	Structural	Water Drive ?	640-acre spacing, well location any quarter-quarter section cornering on center of section. (Order 26-59.)	None
GOOSE LAKE Ratcliffe (Miss.) Oil & Gas	33	Structural- Strat.	Partial Water Drive	160-acre spacing units; well locations according to areas: Area I, center of NW1/4 of quarter section; Area II, center of SE1/4 of quarter section; Area III, center of NE1/4 of quarter section. 200' topographic tolerance. (Orders 42-63, 40-66, 47-67, 16-68.)	Excess produced water disposed into Mission Canyon and Dakota formations. (Orders 12-64, 14-66, 12-68.)
GRABEN COULEE Sunburst (L. Cret.)	2	Structural- Strat.	Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision.	None
Cut Bank (L. Cret.)	18	Structural- Strat.	Depletion	(Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	
Cut Bank-Madison (Dual)	17	Structural- Strat.	Depletion		
Madison (Miss.)	7	Structural- Strat.	Depletion		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
GRANDVIEW Bow Island (L. Cret.) Gas (2 Zones)	1	Structural	Unknown	320-acre spacing units aligned in a north-south direction; well locations no closer than 660' to a spacing unit boundary. (Order 49-67.)	None
Madison (Miss.) Gas	1	Structural	Unknown	Oil: State-wide. (3 shut-in wells.)	
GYPSY BASIN Sunburst (L. Cret.) Oil & Gas	1	Structural- Strat.	Comb. Water Drive and Depletion	330' from lease lines and 660' between wells in same formation. Only two wells per quarter-quarter section. (Order 7-66.)	Order 6-64 permits injection of excessive gas (produced with oil) into the Sunburst gas cap.
Swift (U. Jur.)	1	Structural- Strat.	Comb. Water Drive and Depletion	Same as Sunburst.	
Sawtooth-Madison Oil & Gas (Jur. & Miss.)	2	Structural- Strat.	Comb. Water Drive and Depletion	(Sawtooth-Madison) Oil: 40-acre spacing units; wells no closer than 330' from lease line. (Order 7-66.) (Sawtooth-Madison) Gas: 160-acre spacing units; well locations in center of any quarter-quarter section in each 160-acre unit, 2340' between gas wells, 150' topographic tolerance. (Order 13-59.)	
HARDIN Frontier (U. Cret.) Gas (Shut-in)	17 31	Strat.	Volumetric	State-wide.	None
HARDSCRABBLE CREEK Mission Canyon (Miss.)	1	Structural- Strat.	Water Drive	State-wide.	None
HAY CREEK Mission Canyon (Miss.)	1	Structure	Depletion	320-acre spacing, governmental half section, direction to be determined by operator. Location no closer than 660' from unit boundary. (Order 15-69.)	None
Red River (Ord.)	2				
HIAWATHA Tyler (L. Penn.) (2 Sands)	7	Structural- Strat.	Depletion	State-wide.	None
HIBBARD Amsden (Penn.)	1	Unknown	Water Drive	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
INJUN CREEK Tyler (Penn.)	1	Strat.	Depletion	State-wide.	None
IVANHOE Morrison (U. Jur.)	2	Structural and Strat.	Depletion	40-acre spacing unit for production from any one common formation; well location in center of unit with 200' topographic tolerance. (Order 7-60.)	Waterflood of Tyler B & C discontinued.
Amsden (L. Penn.)	1	Structural and Strat.	Water Drive		
Tyler (L. Penn.)	8	Structural and Strat.	Depletion		
KATY LAKE Ratcliffe (Miss.)	1	Structural-Strat.	Water Drive	State-wide. Formerly called Dwyer West.	None
KEG COULEE Tyler (Penn.) Oil & Gas	22	Strat.	Depletion	40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Orders 3-64, 4-64, 23-64.) 80-acre spacing in remainder of field with variable pattern. (Orders 11-60, 28-62.) Topographic tolerance varies from 100' to 150'. (Orders 11-60, 4-64, 23-64.) Buffer zone waived. (Order 16-65.) Gas to extraction plant in Sumatru field.	Three waterflood units. (Orders 3-64, 28-66, 10-69, 14-69.) Madison water injected.
KEG COULEE, NORTH Tyler (Penn.)	2	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 150' topographic tolerance. (Order 46-64.) Buffer zone waived. (Order 16-65.) Gas to extraction plant.	None
KEITH (See East Keith)					
KELLEY Tyler (Penn.)	5	Strat.	Depletion	State-wide, 250' tolerance. (Order 15-67.)	Waterflood using Third Cat Creek water. (Order 8-69.)
KEVIN-SUNBURST Sunburst (L. Cret.) Oil & Gas Sun River (Miss.) Oil & Gas (part above)	600+	Strat.	Depletion	9 wells per 40-acre tract; only 3 wells on any side of tract set back at least 220' from line. Field delineated by Orders 8-54, 28-55. (Estimated 400 wells shut-in.)	There are four waterfloods in operation, using Madison water.

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
LAIRD CREEK Swift (U. Jur.) Oil & Gas	10	Strat.	Depletion	State-wide. One shut-in gas well.	None
LAKE BASIN, NORTH Eagle, Frontier (U. Cret.) Gas	1	Structural	Unknown	640-acre gas spacing units consisting of one section. Well locations in center of NW 1/4 or SE 1/4 of each section with 75' topographic tolerance. (Order 6-58.)	None
LANDSLIDE BUTTE Sun River (Miss.)	2	Unknown	Water Drive	State-wide.	None
LEARY Muddy (L. Cret.)	2	Structural-Strat.	Depletion	80-acre spacing, subject to review in one year, locations in NE 1/4 and SW 1/4 of each quarter section, 200' topographic tolerance. (Order 12-69.)	None
LISCOM CREEK Shannon (U. Cret.) Gas (Shut-in)	5	Structural-Strat.	Depletion Water Drive	Spacing, one well per 640 acres within 40-acre square centered SE NW (T. 1 N.) and SE 1/4 (T. 2 N.). (Order 5-67.)	None
LITTLE BEAVER (Mont. Portion) Red River (Ord.)	28	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingle) and 219 (Dual Completion) are suspended until present Unit Agreement becomes operative. (Order 41-62.)	Waterflood of the Red River was commenced in August, 1967. (Order 3-66.) Minnesota water.
LITTLE BEAVER, EAST (Mont. Portion) Red River (Ord.)	13	Structural	Comb. Depletion and Water Drive	Same as for Little Beaver. (Order 42-62.)	Waterflood of the Red River was commenced in April, 1965. (Order 33-64.)
LODGE GRASS Tensleep (Penn.)	2	Structural-Strat.	Water Drive	160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Orders 26-64, 26-65.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
LOOKOUT BUTTE (Includes Coral Creek Unit)					
Madison (Miss.)	12	Structural	Water Drive	State-wide spacing.	Water disposal into Madison. (Order 68-62.)
Interlake, Red River (Sil.-Ord.)	22	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE 1/4 of each quarter section with 150' topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Re-delineated per Order 7-63.	Waterflood of Silurian-Ordovician approved in 1966. (Order 35-66.) Water from Minnesota.
MACKAY DOME					
Greybull (L. Cret.) Gas & Oil (Shut-in)	2	Structural	Depletion and Water Drive	State-wide.	Bottom-hole heat, (steam).
MASON LAKE					
Lakota (L. Cret.)	2	Structural	Water Drive	State-wide.	None
MELSTONE					
Tyler (Penn.)	4	Structural-Strat.	Depletion	State-wide.	None
MIDDLE BUTTE					
Blackleaf (Cret.) Gas (Bow Island)	1 2 (Shut-in)	Structural	Volumetric	320-acre spacing units consisting of E 1/2 & W 1/2 of each section; well location in center of either of the inside quarter-quarter sections located in E 1/2 of each spacing unit. 75' topographic tolerance. (Order 3-60.)	None
MINERAL BENCH					
Duperow (Dev.)	1	Structural	Water Drive	State-wide.	Water disposal into Dakota-Lakota per Order 18-65.
MINERS COULEE					
Sunburst (L. Cret.)	1	Strat.	Depletion	40-acre spacing units consisting of quarter-quarter sections; well location no closer than 330' from lease or property line and 660' from any other well. (Order 9-66.)	None
Swift (U. Jur.)	3 (Shut-in)	Strat.	Depletion		
Madison (Miss.)	1 (Shut-in)	Strat. ?	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MONARCH Mission Canyon (Miss.)	2	Structural-Strat.	Water Drive	80-acre spacing units consisting of east and west halves of quarter section. Well location in SW $\frac{1}{4}$ & NE $\frac{1}{4}$ of quarter section. Location within 660' square at center of quarter section. (Order 18-61.)	Produced water is disposed into the salt water disposal system for the Pennel Field.
Interlake, Red River (Sil.-Ord.)	14	Structural-Strat.		160-acre spacing units consisting of a quarter section; well location in center of SW $\frac{1}{4}$ of each quarter section with 175' topographic tolerance. (Orders 12-59, 4-63.)	
MOSBY (See Cat Creek)	15	Structural-Strat.	Water Drive	Listed as part of Cat Creek.	Waterflood, 2nd Cat Creek sand. (Order 8-68.)
MOSSER Greybull (L. Cret.)	4	Structural	Water Drive	Spacing waived. Future development required administrative approval of the Commission. (Order 27-62.)	None
MT. LILLY Madison (Miss.) Gas	2	Structural	Water Drive	640-acre, well location in approximate center of any of the four quarter-quarter sections adjoining center of section; 250' topographic tolerance. (Order 37-63.)	None
NORTH LAKE BASIN (See Lake Basin, North)					
OUTLOOK Mission Canyon (Miss.)	1	Strat.	Water Drive	State-wide spacing.	Produced water is disposed in- to Dakota and Siluro-Devonian formations. (Orders 16-59, 17-65, 36-66.)
Duperow (Dev.)	2	Strat. and Structural	Water Drive	State-wide spacing.	
Silurian-Devonian	7	Strat. and Structural	Water Drive	160-acre spacing units; well location in center of either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of each quarter section; 175' topographic tolerance. (Order 19-59A.)	
OUTLOOK, SOUTH Winnipegosis (Dev.) Interlake (Sil.) (Dual completion with Dev. zone)	1	Structural	Water Drive	160-acre spacing; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ of quarter section; 175' topographic tolerance. (Order 19-59A.) Commingling permitted. (Order 45-64.)	Produced water disposed into Muddy and Dakota formations. (Orders 19-59, 17-65.)
Red River (Ord.)	1	Structural	Water Drive		

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
OUTLOOK, WEST					
Winnipegosis (Dev.)	2	Structural	Water Drive	160-acre spacing units consisting of quarter sections; permitted wells in either SW $\frac{1}{4}$ or NE $\frac{1}{4}$ with a tolerance of 175'. (Order 7-67.)	Produced water disposed into Dakota formation. (Order 42-66.)
PENNEL					
Mission Canyon (Miss.)	8	Structural	Water Drive	(Miss.) 80-acre spacing units consisting of east and west half of quarter section; wells located in center of SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of quarter sections with 150' topographic tolerance. (Order 15-61.)	Produced water is being injected into Dakota, Siluro-Ordovician and Madison formations. (Orders 16-60, 46-62, 68-62, 36-63, 13-64.) Waterflood approved Nov. 1968. (Order 24-68.)
Lodgepole (Miss.)		Structural-Strat.			
Siluro-Ordovician Oil & Gas	110	Structural	Comb. Depletion and Water Drive	80-acre spacing units on west side and 160-acre spacing units on east side of pool. Wells to be located in SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of each quarter section (80 acres) and in SE $\frac{1}{4}$ of each quarter section on 160-acre spacing (Orders 1-56, 8-56, 15-61, 20-62, 4-63, 7-63.) Commingling approved. (Order 59-62.)	
PINE					
Mission Canyon (Miss.) Oil & Gas	1	Structural	Water Drive	Spacing and General Rules 213, 218 and 219 are waived within the Pine Unit. 80-acre spacing units outside of unit area; well location in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of quarter section; 150' topographic tolerance. (Order 37-62.) Gas through extraction plant.	A waterflood program for the south area was started in 1959. A waterflood of the north area was approved in 1967. (Orders 13-68, 1-60, 8-62, 32-67.)
Siluro-Ordovician Oil & Gas	117	Structural	Comb. Depletion and Water Drive		
PLEVNA					
Eagle, Judith River (U. Cret.) Gas	25	Structural	Water Drive	1200' from legal subdivision line; 2400' from other wells on same lease or unit; 75' topographic tolerance. (Orders 34-54, 4-57.)	None
POLE CREEK					
Amsden (Penn.)	1	Structural	Water Drive	State-wide.	None
PONDERA					
Sun River (Miss.) Oil & Gas	273	Structural and Strat.	Comb. Depletion and Water Drive	Oil: 220' from legal subdivision, 430' from other wells in same reservoir on same lease; 75' topographic tolerance. Porter Bench Extension: 330' from legal subdivision line; 650' from other wells in same reservoir on same lease or unit; 75' topographic tolerance. (Order 9-54.) Gas: 1320' from legal subdivision line; 3700' from other wells on same lease or unit; 75' topographic tolerance. (Order 9-54.) General Rules 207, 211, 219, 221, 223, and 224 do not apply.	Produced water injected into lower Madison. (Orders 11-56, 15-56, 4-65, 4-66.) A small waterflood project has been in operation since 1959, using Madison water.

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
PONDERA COULEE Sun River (Miss.)	4 (Shut-in)	Structural	Water Drive	330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance. (Order 5-62.)	None
POPLAR, EAST Madison (Miss.) (Charles & Mission Canyon fms.) Heath (Tyler) (Penn.)	58 4	Structural Structural- Strat.	Water Drive Water Drive	State-wide spacing; field delineated by Order 7-55, 33 shut-in oil wells, 6 shut-in gas wells.	Excess produced water has been injected into the Dakota and Judith River formations. (Orders 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62, 51-67.)
Nisku (Dev.)	1	Structural	Water Drive		
POPLAR, NORTHWEST Charles (Miss.) ("C" or McGowan Zone)	1	Structural	Water Drive	80-acre spacing units consisting of E 1/2 and W 1/2 of each quarter section; permitted wells in NW 1/4 and SE 1/4 of quarter section. 75' topographic tolerance. (Order 18-55.)	None
PRAIRIE ELK Charles "C" (Miss.)	1 (Shut-in)	Unknown	Water Drive	State-wide.	None
PUMPKIN CREEK Shannon (U. Cret.) Gas	7 (Shut-in)	Structural- Strat.	Depletion	State-wide.	None
RAGGED POINT Tyler (Penn.)	11	Strat.	Depletion	40-acre spacing units; 75' topographic tolerance. (Order 8-59.) Spacing waived for Tyler "A" sand reservoir within Tyler "A" Sand Unit except no well can be closer than 660' to Unit boundary. (Order 35-65.)	A waterflood project of the Tyler "A" sand was commenced in February, 1966, using Third Cat Creek sand water. (Order 35-65.) Water disposal into Kibbey. (Order 19-65.)
Kibbey (Miss.)	1	Structural	Water Drive	State-wide spacing. (Order 15-54.) Commingling of production from Tyler and Kibbey permitted in one well per Order 11-65.	
RATTLESNAKE COULEE Sunburst (L. Cret.)	2	Strat.	Depletion	State-wide.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
REAGAN Sun River (Miss.)	Oil Gas 48 1	Structural	Comb. Gas Cap and Water Drive	State-wide. Two shut-in oil wells. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.)
RED CREEK Cut Bank (L. Cret.) Oil & Gas	9	Strat.	Depletion	40-acre spacing units; wells in center of spacing unit with 75' topographic or obstruction tolerance; spacing waived for unitized portion. (Orders 16-58, 73-62, 31-64.)	Excess produced water injected into Bow Island and Madison. (Orders 22-63, 37-64.) A waterflood project in the Cut Bank sand was initiated in June, 1965, using Madison water.
RED FOX Nisku (Dev.)	1	Structural	Water Drive	Field consists of one 160-acre spacing unit which straddles the section line. (Order 20-67.)	None
REDSTONE Winnipegosis (Dev.)	1	Unknown	Water Drive	One well per 160-acre unit, but no closer than 660' from unit boundary.	None
REPEAT Red River (Ord.)	1	Unknown	Water Drive	State-wide.	None
RESERVE Winnipegosis (Dev.)	1	Structural-Strat.	Water Drive	160-acre spacing units; permitted well within 1320' square in center of quarter section. Commingling of Red River and Interlake production permitted an individual well basis. (Orders 34-66, 27-67.)	None
Interlake (Sil.)	(Shut-in)	Structural-Strat.	Water Drive		
Red River (Ord.)	4	Structural-Strat.	Water Drive		
RICHEY Charles (Miss.)	(Shut-in)	1 Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section; 75' topographic tolerance. (Order 21-55.)	Part of produced water is being injected into the Dakota formation. (Orders 10-58, 19-61.)

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
RICHEY, SOUTHWEST Interlake, Dawson Bay (Sil.) (Dev.)	6	Structural	Depletion	160-acre spacing units; wells no closer than 900' from boundary of spacing unit. (Order 25-62.)	A waterflood project in the Interlake and Dawson Bay was started in 1965. (Order 34-65.)
ROSCOE Lakota (L. Cret.)	1 (Shut-in)	Structural	Water Drive	State-wide.	None
ROUGH CREEK Muddy (L. Cret.)	1 (Shut-in)	Structural-Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None
RUDYARD Sawtooth (M. Jur.) Gas	3 (Shut-in)	Structural	Volumetric	640-acre spacing units consisting of one section; well location in center of NW ¹ / ₄ of section with 75' topographic tolerance. (Order 2-58.)	None
RUSH MOUNTAIN Winnipegosis (M. Dev.) Red River (Ord.)	1	Structural	Volumetric-Water Drive	State-wide. Dual zone completion in discovery well.	None
SAND CREEK Interlake, Red River (Sil.) (Ord.)	8	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Wells located in center of NW ¹ / ₄ and SE ¹ / ₄ of each quarter section. (Order 16-59.) Commingling of production from Interlake and Red River authorized per Order 49-62.	Excess produced water is injected into the Swift formation. (Order 9-61.)
SHELBY AREA Sunburst (L. Cret.) Gas	51	Structural-Strat.	Depletion	State-wide. Field outline not delineated	None
SHOTGUN CREEK Ratcliffe (Miss.)	1	Structural	Water Drive	State-wide.	None
SIDNEY-BRORSON (See Brorson and Brorson, South)					

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
SMOKE CREEK Charles (Miss.)	3	Structural	Water Drive	State-wide.	None
SNYDER Tensleep (Penn.)	4	Structural	Water Drive	10-acre spacing units with center 5-spot permitted; 150' topographic tolerance. (Order 45-62.)	None
SOAP CREEK Tensleep, Amsden, Modison (Penn.) (Penn.) (Miss.)	17	Structural	Water Drive	One well per 10-acre spacing unit per production formation; well location in center of spacing unit with 100' topographic tolerance. (Order 26-60.)	None
SPRING LAKE Nisku (Dev.)	1	Structural	Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.)	None
Red River (Ord.)	2	Structural	Depletion		
SQUAW CÔULEE Eagle (U. Cret.) Gas	7	Structural-Strat.	Volumetric	State-wide. In T. 32N., R. 15E., not delineated.	None
STENSVD Tyler (Penn.)	12	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 200' tolerance. (Orders 2-59, 7-60.) Wells may be drilled anywhere within waterflood unit boundary, no closer than 660' from unit boundary. (Order 5-65 Amended.)	A waterflood operation has been in progress since 1963, using Madison water. (Orders 53-62, 9-67.)
SUMATRA Tyler (Penn.) Oil & Gas	70	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' tolerance. (Order 14-58.) Gas extraction plant in field. Gas plant burned down in July.	Four waterflood units using Madison water. (Orders 48-67, 6-69, 15-69, 19-69.)
TIGER RIDGE Judith River (U. Cret.) Gas	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None
Eagle (U. Cret.) Gas	2	Structural-Strat.	Water-Drive-Depletion	One well per section within 2640' square in center of each unit and no closer than 1320' from boundary of unit.	
Sawtooth (Jur.) Oil	1	Structural-Strat	Water Drive	State-wide.	

Field, Formation, Age	No. Prod. Wells	Type at Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
TULE CREEK Nisku (Dev.)	6	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 26-62, 6-65, 11-67.)	Produced water injected into Dakota & Judith River formations. (Orders 12-66, 24-67.)
TULE CREEK, EAST Nisku (Dev.)	2	Structural	Water Drive	160-acre spacing units with permitted well anywhere within 1320' square in center of each unit. (Orders 40-64, 6-65.)	Water injected into Judith River formation. (Order 13-68.)
TULE CREEK, SOUTH Nisku (Dev.)	3	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit.	Authority given to dispose of produced water into Dakota. (Order 44-64.) Into Judith River formation. (Order 29-67.)
UTOPIA (Under Ethridge Field)					
VIDA Interlake (Sil.)	2	Structural	Water Drive	150-acre spacing units with permitted well anywhere within an 840' square in center of each unit. (Order 39-63.)	Water injected into Lakota formation. (Order 14-68.)
VOLT Nisku (Dev.)	4	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Orders 27-64, 6-65, 32-65.)	Excess produced water is disposed into Judith River. (Order 3-65.)
Charles "C" (Miss.)	1	Structural	Water Drive	State-wide.	
WEED CREEK Amsden (L. Penn.)	2	Structural	Water Drive	State-wide.	None
WELDON Kibbey (Miss.)	9	Structural	Partial Water Drive	80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in center of NE 1/4 and SW 1/4 of quarter section with 200' topographic tolerance. (Order 9-65.)	Excess produced water is disposed into the Dakota, Lakota, Morrison, and Charles formations. (Orders 31-65, 47-65, 37-66, 16-67.)

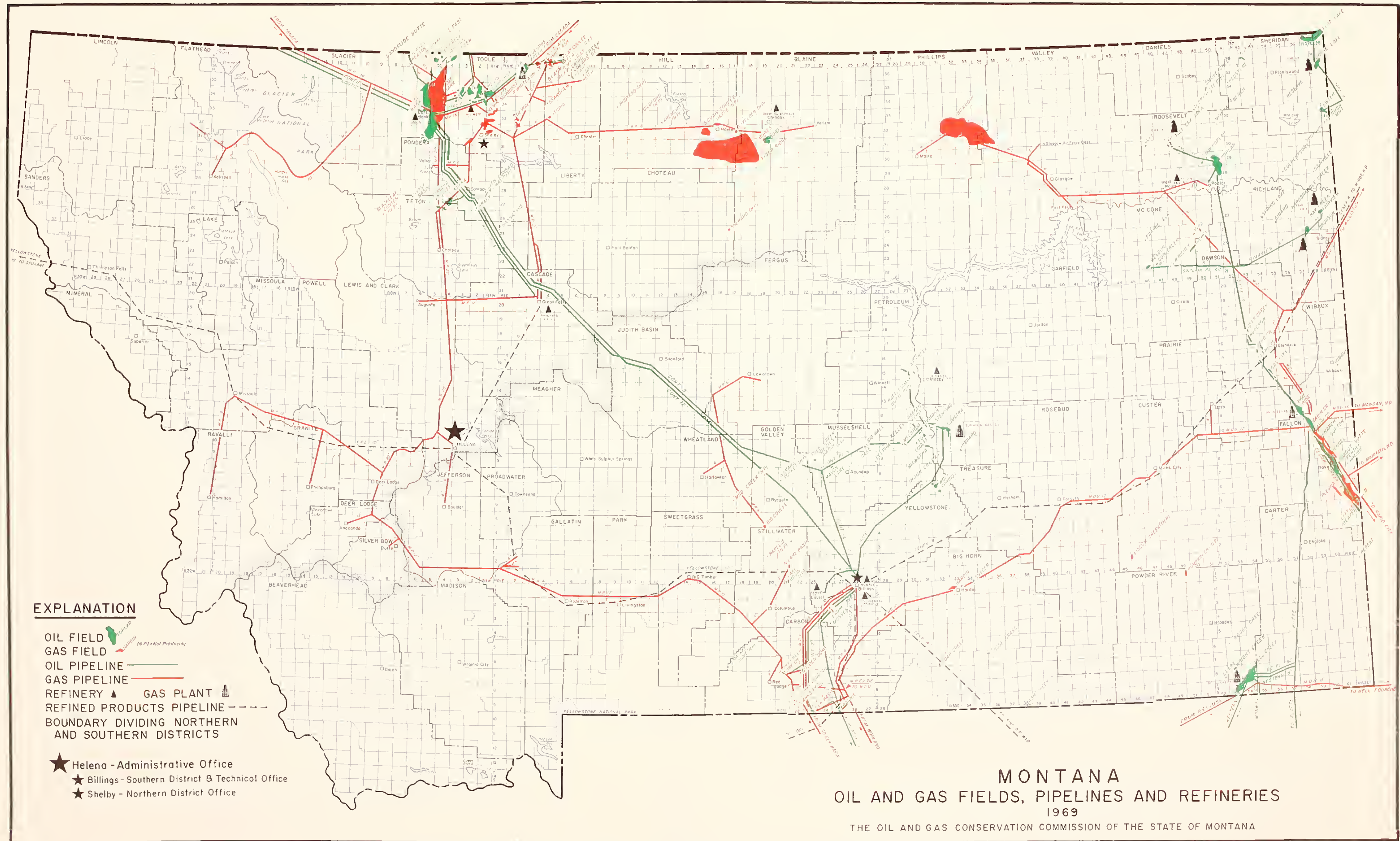
Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WEST BUTTE					
Sunburst (L. Cret.) Oil	1	Structural-Strat.	Depletion	State-wide.	None
Sawtooth (Jur.) Gas	2	Structure	Water Drive	Sawtooth-Madison gas commingled, 320-acre unit, no closer than 330' from unit boundary. (Order 29-68.)	
Madison (Miss.) Gas (Shut-in)					
WHITLASH					
Bow Island, Kootenai, Swift (Cret.) (Jur.)	Oil 44 Gas 40	Comb. Strat. and Struct.	Volumetric	Gas: 300' from legal subdivision line and 2400' between wells, 75' topographic tolerance. Oil: 330' from legal subdivision line and 650' between wells; 5-spot location at center of 40-acre tract permitted; 75' topographic tolerance. General Rules 207, 211, 219, 221, 223, and 224 suspended. (Order 16-54.)	None
WHITLASH, WEST					
Sunburst, Swift (Cret.) (Jur.)	Oil 1 Gas 9	Structural and Strat.	Volumetric	Gas: 160-acre spacing units consisting of quarter sections; well location anywhere within a 660' square in center of spacing unit. Oil: 330' from legal subdivision line, 650' between wells in same reservoir on same lease; 5-spot location permitted. (Order 61-62.)	None
WIBAUX					
Red River (Ord.)	1	Structural-Strat.	Depletion-Water Drive	State-wide.	None
WILLS CREEK, SOUTH					
Interlake (Sil.)	2	Structural	Partial Water Drive	160-acre spacing units. Well location in center of SE $\frac{1}{4}$ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	None
WRIGHT CREEK					
Muddy (L. Cret.)	5	Structural-Strat.	Depletion-Water Drive	80-acre spacing consisting of N $\frac{1}{2}$ and S $\frac{1}{2}$ of quarter section with locations in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each quarter section with 200' tolerance.	None

Field, Formation, Age	No. Prod. Wells	Type of Trop	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
WOLF SPRINGS Amsden (Penn.)	9	Structural	Water Drive	80-acre spacing units consisting of N1/2 and S1/2 of each quarter section. Well location in center of NW1/4 and SE1/4 of each quarter section with 75' topographic tolerance. (Orders 4-56, 9-59.)	None
WOODROW Charles, Duperaw, Interlake Red River (Ord.)	1 1	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; well locations in center of NE1/4 and SW1/4 of each quarter section with 200' topographic tolerance. (Order 47-62.) One Charles well; one Interlake well; one commingled Interlake-Duperaw well; one Red River well.	Produced water injected into Dakata. (Order 48-62.)

STATE OF MONTANA - SUMMARY OF PRODUCING OIL FIELDS

MONTANA OIL AND GAS CONSERVATION COMMISSION
1969

LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCING FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME FACTOR	AVG. NET	AVG. POROSITY	AVG. CONNATE	ORIGINAL OIL IN PLACE BBL/S/ACRE	PRODUCTIVE AREA 1-1-70 ACRES	ORIGINAL OIL	ESTIMATED RECOVERY FACTOR %		ORIGINAL RESERVES 1000 BBL/S.		TOTAL ORIGINAL RESERVES 1000 BBL/S.	CUMULATIVE PRODUCTION 1-1-70 1000 BBL/S.	REMAINING RESERVES 1-1-70 1000 BBL/S.	1969 PRODUCTION		ORIGINAL RECOVERABLE RESERVES		LINE NO.
								FT.	%	%			IN PLACE 1000 BBL/S.	PRIMARY	SECONDARY	PRIMARY	SECONDARY				TOTAL BBL/S.	AVG. DAILY BOPD.	BBL/S. / ACRE	BBL/S. ACRE/FT.	
1.	Ash Creek (Montana)	Big Horn	1952	Shannon (U. Cret.)	4,500	34	1.05	14	22	42	13,200	200	2,640	25	6	660	158	818	649	169	30,149	83	4,089	292	1
2.	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2,300	39	1.08	20	12	35	11,200	200	2,240	17	--	390	--	390	340	50	13,764	38	1,950	98	2
3.	Bell Creek	Powder River	1967	Muddy (Cret.)	4,400	36	1.11	10	26	23	14,000	16,000	224,000	26	26	58,000	58,000	116,000	31,466	84,534	13,183,438	36,119	7,249	724	3
4.	Benrud	Roosevelt	1961	Nisku (Dev.)	7,700	43	1.41	22	16	30	13,550	80	1,080	17	--	185	--	185	172	13	5,455	15	2,320	105	4
5.	Benrud, East	Roosevelt	1962	Nisku (Dev.)	7,500	46	1.37	22	15	30	13,080	320	4,190	42	--	1,780	--	1,780	1,009	771	175,605	481	5,490	250	5
6.	Benrud, Northeast	Roosevelt	1964	Nisku (Dev.)	7,600	46	1.40	45	16	30	27,930	160	4,470	18	--	810	--	810	702	108	50,629	139	4,720	105	6
7.	Big Wall	Musselshell	1953	Amsden (Penn.)	2,500	31	1.61	17	16	35	8,520	280	2,390	26	--	630	--	630	561	69	14,785	41	2,215	130	7
8.	Big Wall	Musselshell	1948	Tyler (Penn.)	3,000	19	1.02	22	17	40	17,070	1,220	20,820	26	2	5,500	500	6,000	5,510	490	157,932	433	4,920	224	8
9.	Blackfoot	Glacier	1955	Madison (Miss.)	3,600	25	1.15	8	14	40	4,530	480	2,170	32	--	700	--	1,030	923	107	29,653	81	1,460	183	9
10.	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	3,500	30	1.11	15	15	35	10,220	160	1,640	20	--	330	--	--	--	--	--	--	2,060	137	10
11.	Bowes	Blaine	1949	Sawtooth (M. Jur.)	3,300	19	1.02	37	12	31	23,300	3,760	87,610	8	2	6,840	2,020	8,860	7,238	1,622	152,802	419	2,360	64	11
12.	Brorson	Richland	1954	Madison (Miss.)	9,600	32	1.40	40	5	40	6,650	1,120	7,450	9	--	640	--	640	289	351	62,414	171	571	14	12
13.	Brorson	Richland	1968	Red River (Ord.)	12,600	48	1.70	20	10	35	5,930	1,440	8,540	37	--	3,150	--	3,150	888	2,262	551,458	1,511	2,190	110	13
14.	Brorson, South	Richland	1968	Red River (Ord.)	12,600	48	1.70	20	12	30	7,670	480	3,680	24	--	900	--	900	353	547	270,586	741	1,875	94	14
15.	Cabin Creek	Fallon	1953	Siluro-Ordovician	9,000	33	1.20	50	13	30	29,420	7,620	224,180	22	10	49,310	22,420	71,730	43,060	28,670	2,456,208	6,729	9,410	188	15
16.	Cabin Creek	Fallon	1956	Madison (Miss.)	7,300	33	1.13	25	11	30	13,220	2,260	29,880	50	--	14,490	--	14,490	9,050	5,440	1,116,993	3,116	6,610	264	16
17.	Cat Creek (West Dome)	Petroleum	1920	Kootenai (L. Cret.)	1,100	52	1.10	51	21	19	61,180	900	55,060	27	6	14,900	3,100	18,000	16,787	1,213	63,587	174	20,000	392	17
18.	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1,200	52	1.10	10	21	19	12,000	200	2,400	22	11	528	264	--	--	--	--	--	3,960	396	18
19.	Cat Creek	Petroleum, Garfield	1945	Morrison (U. Jur.)	1,600	52	1.10	6	22	40	5,590	240	1,340	32	--	428	--	6,249	4,632	1,617	100,558	276	1,785	298	19
20.	Cat Creek	Petroleum, Garfield	1945	Ellis (U. Jur.)	1,800	52	1.10	25	18	40	19,040	880	16,760	30	--	5,029	--	--	--	--	--	--	5,712	228	20
21.	Cat Creek	Petroleum	1967	Amsden (Penn.)	2,000	52	1.00	10	8	30	4,340	80	350	21	--	75	--	75	25	50	14,241	39	930	93	21
22.	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2,900	31	1.09	18	15	35	12,490	49,000	612,100	20	11	122,500	67,300	189,800	112,321	77,479	4,837,708	13,254	3,872	215	22
23.	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3,000	34	1.10	10	14	30	6,910	3,200	22,110	28	--	6,200	--	6,200	5,852	348	115,756	317	1,938	194	23
24.	Deer Creek	Owson	1952	Red River (Ord.)	9,900	41	1.20	90	7	30	28,510	400	11,400	10	--	1,130	--	1,130	1,050	80	7,323	20	2,825	31	24
25.	Deer Creek	Owson	1956	Interlake (Sil.)	9,400	43	1.20	38	7	30	12,040	320	3,850	32	--	1,250	--	1,250	1,101	149	21,852	60	3,908	103	25
26.	Dwyer	Sheridan	1960	Missian Canyon (Miss.)	8,000	33	1.12	30	12	55	12,570	4,800	60,330	10	--	6,000	--	6,000	4,215	1,785	228,454	626	1,249	42	26
27.	Elk Basin (Montana Portion)	Carbon	1915	Frontier (U. Cret.)	1,200	45	1.16	30	21	20	33,710	120	4,050	--	37	--	1,500	1,500	1,357	143	40,958	112	12,482	416	27
28.	Elk Basin (Montana Portion)	Carbon	1942	Tensleep (Penn.)	5,000	29	1.16	124	11	10	82,100	1,400	114,900	--	57	--	65,500	65,500	47,006	18,494	1,598,500	4,379	46,797	377	28
29.	Elk Basin (Montana Portion)	Carbon	1942	Madison (Miss.)	5,300	28	1.12	224	12	9	169,400	920	155,850	14	3	21,800	4,600	26,400	13,910	12,490	800,976	2,194	28,679	128	29
30.	Elk Basin, Northwest	Carbon	1947	Frontier (U. Cret.)	3,400	47	1.29	28	19	30	22,400	120	2,690	25	21	672	564	1,236	1,083	153	14,071	39	10,291	368	30
31.	Elk Basin, Northwest	Carbon	1947	Madison (Miss.)	6,200	35	1.08	124	12	35	69,480	200													



SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS

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